Bendix® *Cyclone DuraDrain*™ Trailer Water Separator

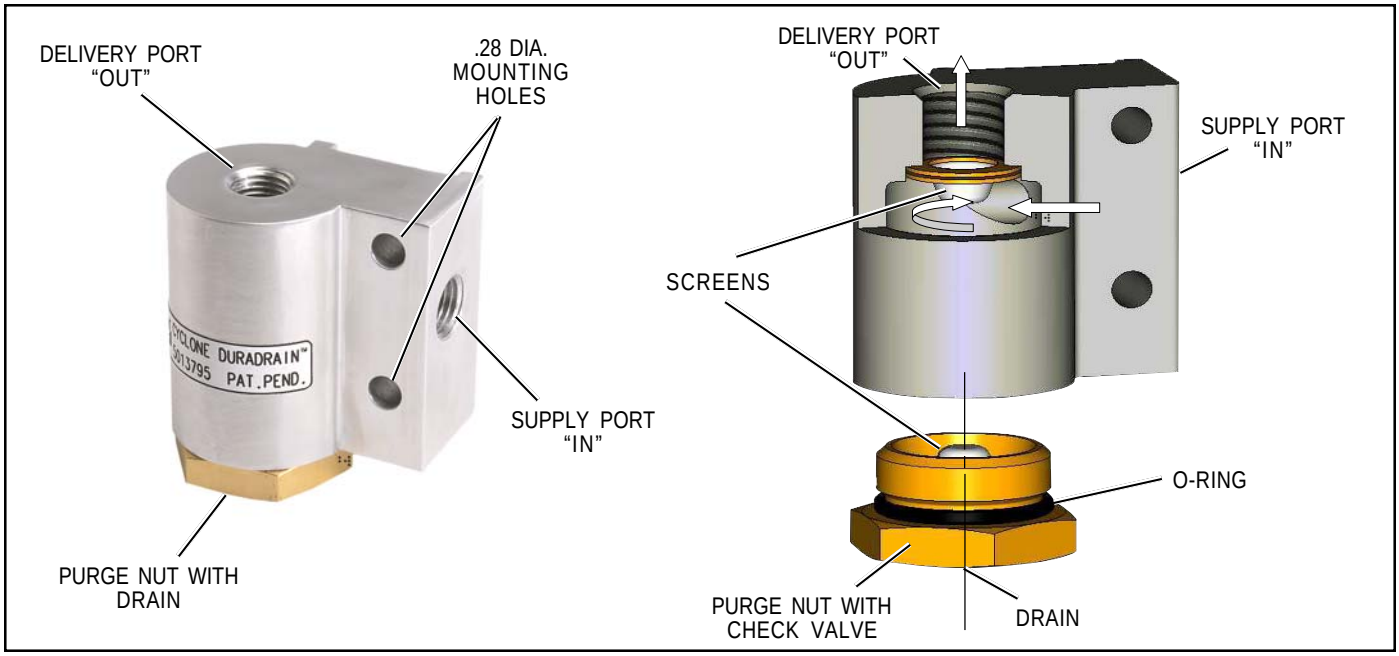

FIGURE 1 - ***CYCLONE DURADRAIN***™ **TRAILER WATER SEPARATOR**

DESCRIPTION

The Cyclone DuraDrain™ trailer water separator can be installed in the trailer control or in the supply line near the gladhand. It removes water and contaminants that can cause brakes to drag and improves the life of the trailer system components.

OPERATION (See Figure 1)

Compressed air enters the supply port of the Cyclone DuraDrain™ trailer water separator. The air pressure pushes down on the check valve contained in the purge nut and closes the purge nut drain port. When air enters the supply port of the Cyclone DuraDrain™ trailer water separator a cyclonic action is created.

The cyclonic motion separates the oil, water and particulates. The oil, water and particulates gravitate to the bottom of the Cyclone DuraDrain™ trailer water separator where they collect. When the air pressure above the purge nut check valve returns to atmospheric pressure, the check valve moves up and off its seat. The contaminants then drain through the purge nut drain port.

If water from a gladhand enters the supply port and no air pressure is applied, gravity will allow the water and contaminants to drain through the purge nut drain port.

GENERAL SAFETY GUIDELINES

WARNING! PLEASE READ AND FOLLOW THESE INSTRUCTIONS TO AVOID PERSONAL INJURY OR DEATH:

When working on or around a vehicle, the following general precautions should be observed at all times.

1. **Park the vehicle on a level surface, apply the parking brakes, and always block the wheels. Always wear safety glasses.**
2. **Stop the engine and remove ignition key when working under or around the vehicle. When working in the engine compartment, the engine should be shut off and the ignition key should be removed. Where circumstances require that the engine be in operation, EXTREME CAUTION should be used to prevent personal injury resulting from contact with moving, rotating, leaking, heated or electrically charged components.**

3. **Do not attempt to install, remove, disassemble or assemble a component until you have read and thoroughly understand the recommended procedures. Use only the proper tools and observe all precautions pertaining to use of those tools.**

4. **If the work is being performed on the vehicle's air brake system, or any auxiliary pressurized air systems, make certain to drain the air pressure from all reservoirs before beginning ANY work on the vehicle. If the vehicle is equipped with an AD-IS® air dryer system or a dryer reservoir module, be sure to drain the purge reservoir.**

5. **Following the vehicle manufacturer's recommended procedures, deactivate the electrical system in a manner that safely removes all electrical power from the vehicle.**

6. **Never exceed manufacturer's recommended pressures.**

7. **Never connect or disconnect a hose or line containing pressure; it may whip. Never remove a component or plug unless you are certain all system pressure has been depleted.**

8. **Use only genuine Bendix® replacement parts, components and kits. Replacement hardware, tubing, hose, fittings, etc. must be of equivalent size, type and strength as original equipment and be designed specifically for such applications and systems.**

9. **Components with stripped threads or damaged parts should be replaced rather than repaired. Do not attempt repairs requiring machining or welding unless specifically stated and approved by the vehicle and component manufacturer.**

10. **Prior to returning the vehicle to service, make certain all components and systems are restored to their proper operating condition.**

11. **For vehicles with Antilock Traction Control (ATC), the ATC function must be disabled (ATC indicator lamp should be ON) prior to performing any vehicle maintenance where one or more wheels on a drive axle are lifted off the ground and moving.**

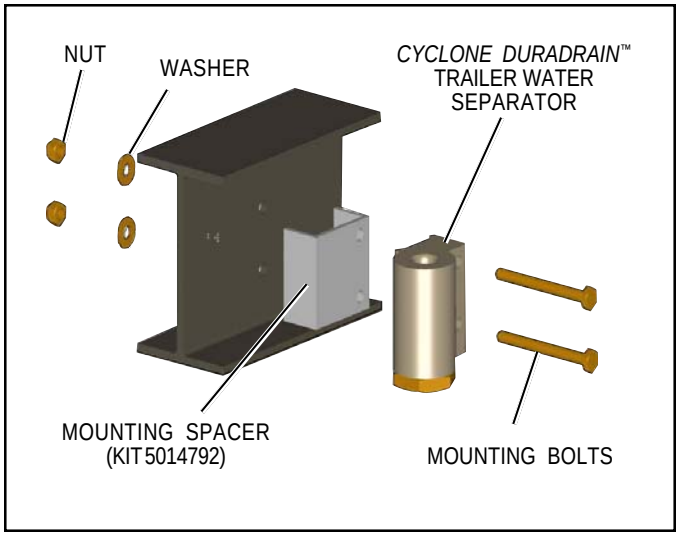

FIGURE 2 - **INSTALLATION**

REMOVING

Disconnect both upstream gladhands from the trailer or dolly before beginning work on the Cyclone DuraDrain™ trailer water separator.

1. Disconnect the supply and delivery line fittings.
2. Remove the mounting hardware, and spacer if applicable, that secures the Cyclone DuraDrain™ trailer water separator to the trailer frame rail.

INSTALLATION

A Cyclone DuraDrain™ trailer water separator can be installed in the control and/or the supply line of the trailer between the gladhand and the first valve in the trailer system. See Figure 3 Trailer Schematic.

1. Identify the control and/or the supply line that the Cyclone DuraDrain™ trailer water separator is to be installed in. The trailer water separator should be installed at the lowest point on the air line, but should not be too low causing a dip in the air line. The Cyclone DuraDrain™ trailer water separator must be installed vertically with the purge nut pointing down to the ground to allow for adequate draining.

2. Locate a mounting position on the trailer frame rail or crossmember. Using the Cyclone DuraDrain™ trailer water separator as a template, mark the location of the mounting holes. Drill two mounting holes. Consult with the trailer manufacturer prior to drilling any holes in the frame rail or crossmember. If a mounting spacer is used, install as shown in Figure 2. Secure using grade 2 or 5 mounting hardware.

3. Cut the air line and install a 3/8" NPT male fitting at each end. Connect the air lines to the supply and delivery ports of the Cyclone DuraDrain™ trailer water separator.

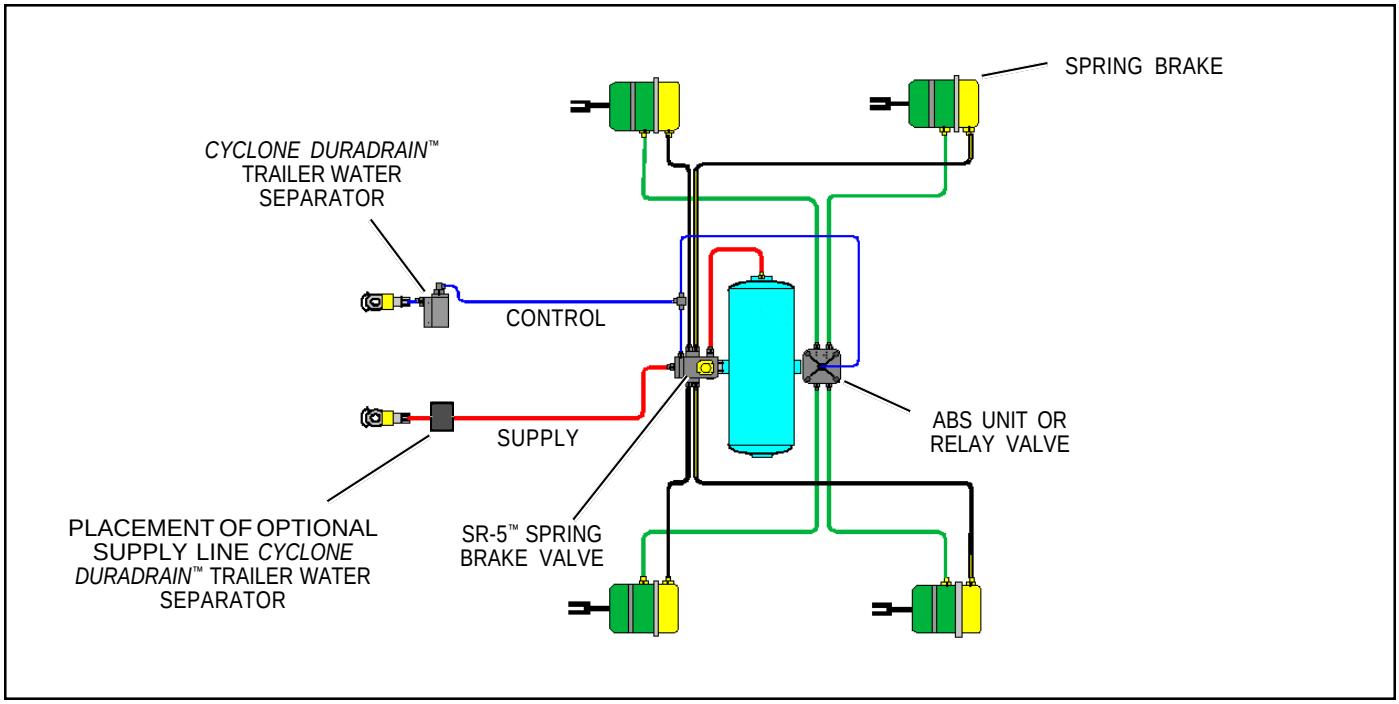

FIGURE 3 - **TRAILER SCHEMATIC**

SERVICE INTERVALS

Service intervals are dependent on specific environmental and operational factors that control the amount of contamination removed by the Cyclone DuraDrain™ unit. Experience should be used to determine how frequently the unit must be serviced. As a recommended minimum, every 12 months, 100,000 miles or 3,600 operating hours, perform the Operational and Leakage Tests. Inspect the Cyclone DuraDrain™ unit for unrestricted airflow and blockage from debris collection. Remove the purge nut and service according to the “Disassembly and Cleaning” instructions. If the purge nut is damaged or improperly functioning, replace with the purge nut service kit.

OPERATIONAL AND LEAKAGE TESTS

Connect the tractor air lines to the trailer being tested. Block all wheels or hold the vehicle by means other than air brakes.

Supply Line (Emergency)

1. Build tractor and trailer to full system pressure by placing the park control valve and the trailer air supply valve in the charge position.
2. When full system pressure is reached, and the spring brakes are fully released, apply a soap solution to the supply and delivery ports of the Cyclone DuraDrain™ trailer water separator. A 1" bubble in 5 seconds is permissible.

Control Line (Service)

1. Build tractor and trailer to full system pressure by placing the park control valve and the trailer air supply valve in the charge position.
2. When full system pressure is reached, and the spring brakes are fully released, apply a soap solution to the supply and delivery ports of the Cyclone DuraDrain™ trailer water separator. Apply the brakes and check for leaks. A 1" bubble in 5 seconds is permissible.

DISASSEMBLY AND CLEANING

Periodically inspect and clean the Cyclone DuraDrain™ trailer water separator. Do not disconnect or remove the Cyclone DuraDrain™ body.

1. Disconnect both upstream gladhands from the trailer or dolly before beginning work on the Cyclone DuraDrain™ trailer water separator. All servicing can be done without disconnecting the air lines from the body.
2. Remove the 1-3/8" hex purge nut assembly with o-ring from the bottom of the leaking Cyclone DuraDrain™ trailer water separator. Remove the o-ring from the purge nut.

AIR CLEANING

A rubber pressure-activated valve is located under the screen in the purge nut. The screen is permanently installed and cannot be removed. Attempts to remove the screen and access the pressure-activated valve will damage the purge nut necessitating its replacement.

WARNING NOTE: an air gun blowing backward through the drain hole in the bottom of the nut can dislodge the pressure-activated valve necessitating replacement of the purge nut.

The most common cause of air leakage is sandy debris on the valve seat inside the purge nut. Dislodging and ejecting the debris can restore leak-free operation.

3. Gently tap the purge nut upside down and sideways to dislodge possible debris taking care not to damage the screen.
4. Blow air in the normal downward direction through the screen to remove debris out the drain hole. Review the warning note.
5. Inspect the o-ring for damage and replace if necessary. Apply a small amount of barium grease to o-ring and place it into the o-ring groove of the purge nut assembly. Reinstall the purge nut into the Cyclone DuraDrain™ body using hand tools with low to moderate torque (150 in-lbs).
6. Reapply air pressure and determine if the leak has been eliminated.

SOLVENT CLEANING

If air leakage was not eliminated by air cleaning, the purge nut may be cleaned in a mineral spirits parts washer. Repeat the removal procedure steps 1 and 2 before proceeding.

7. Wash the hex purge nut in mineral spirits parts washer. Flow solvent downward through the screen and out the drain hole.
8. For stubborn debris, the purge nut may be soaked in the parts washer overnight to dissolve persistent deposits.
9. Apply a small amount of barium grease to o-ring and place it into the o-ring groove of the purge nut assembly. Reinstall the purge nut into the Cyclone DuraDrain™ body using hand tools with low to moderate torque (150 in-lbs).
10. Reapply air pressure and determine if the leak has been eliminated.
11. If the air leak persists, replace the entire purge nut with Bendix service kit piece number 5013824.

Maintenance Kits .....Piece No.

Purge Nut Service Kit 5013824
Mounting Spacer Kit 5014792

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